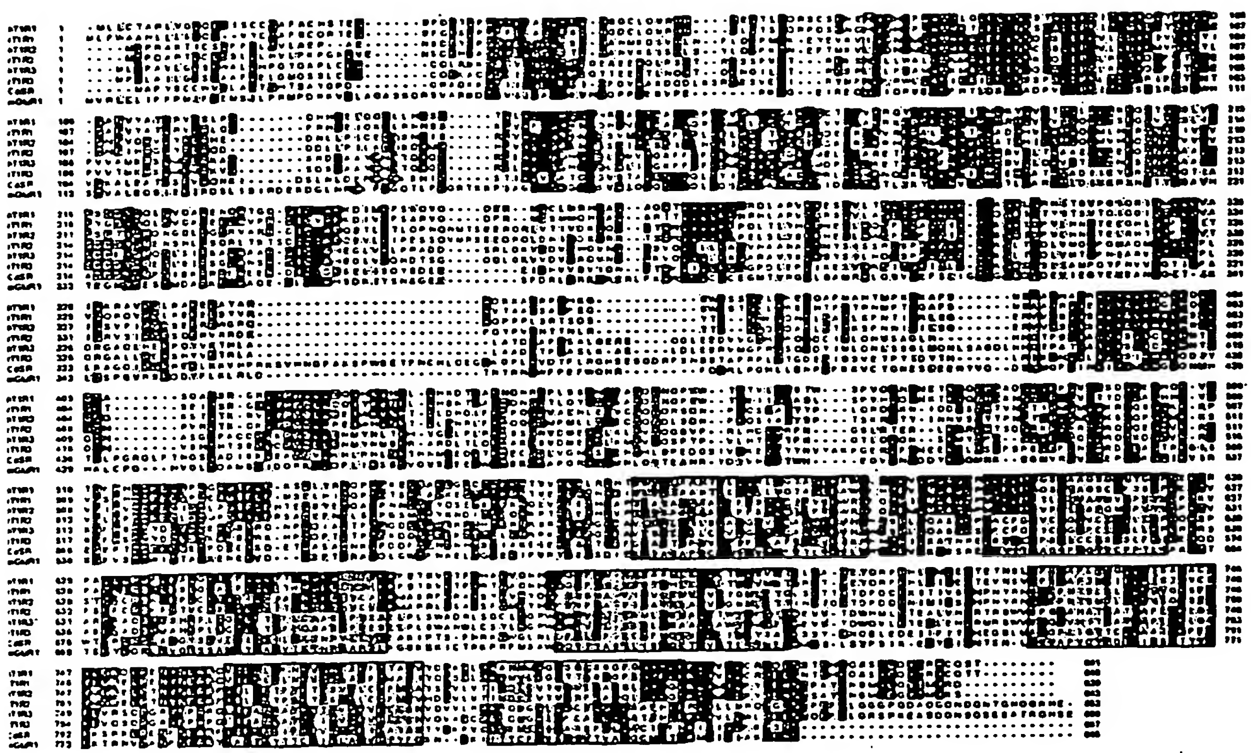
Figure 1: Catalog ρf human and rate T1Rs



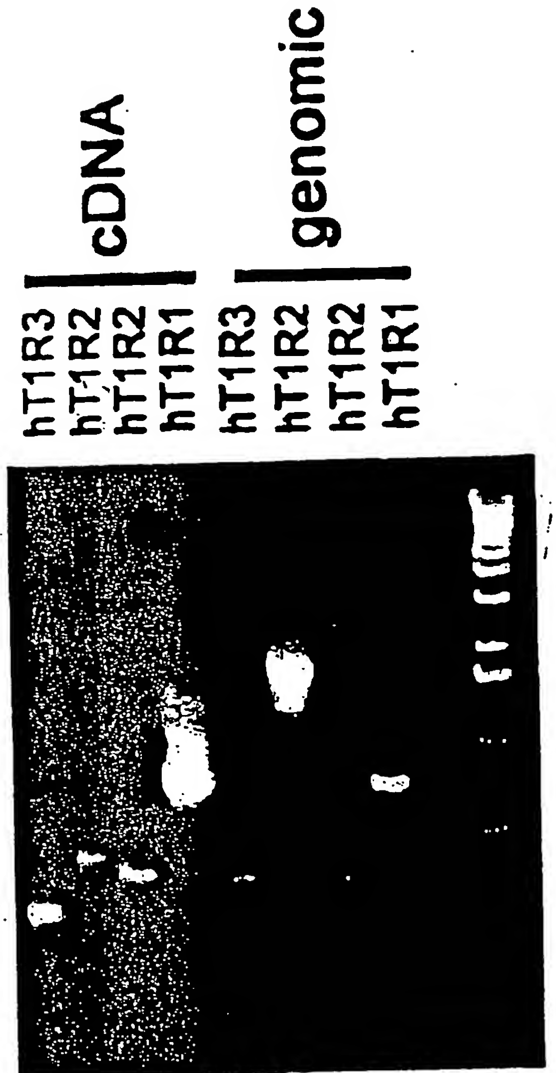


Figure 2 hT1R2 and hT1R3 are expressed in human tongue epithelium. cDNA-specific amplification products can be amplified from cDNA prepared from resected human circumvallate papillae.

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Figure 3 Human T1R2/T1R3 functions as a sweet taste receptor

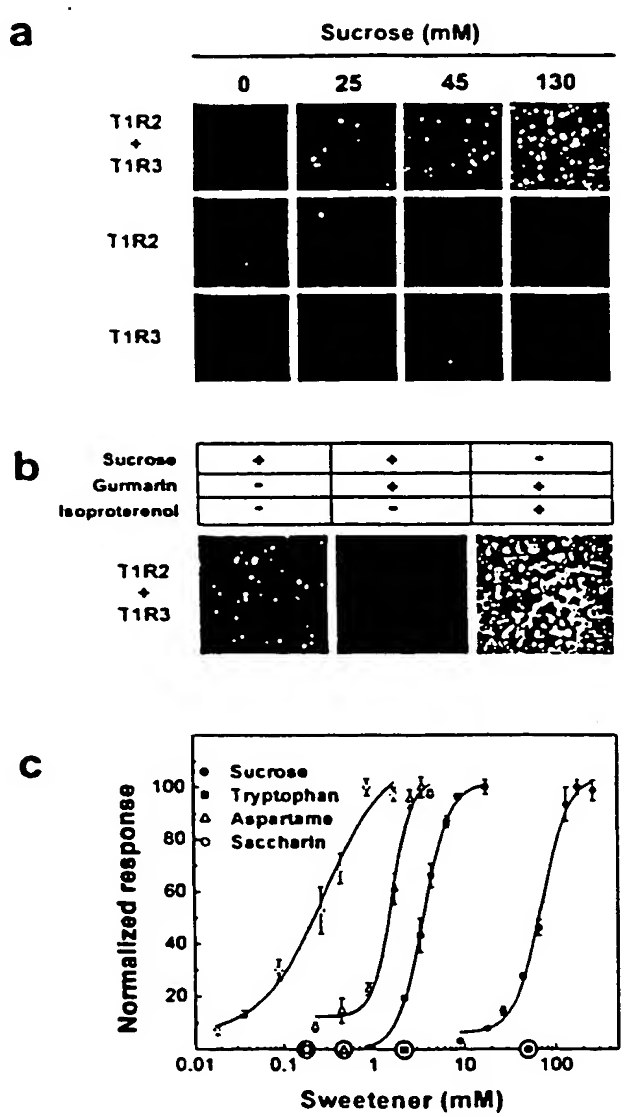

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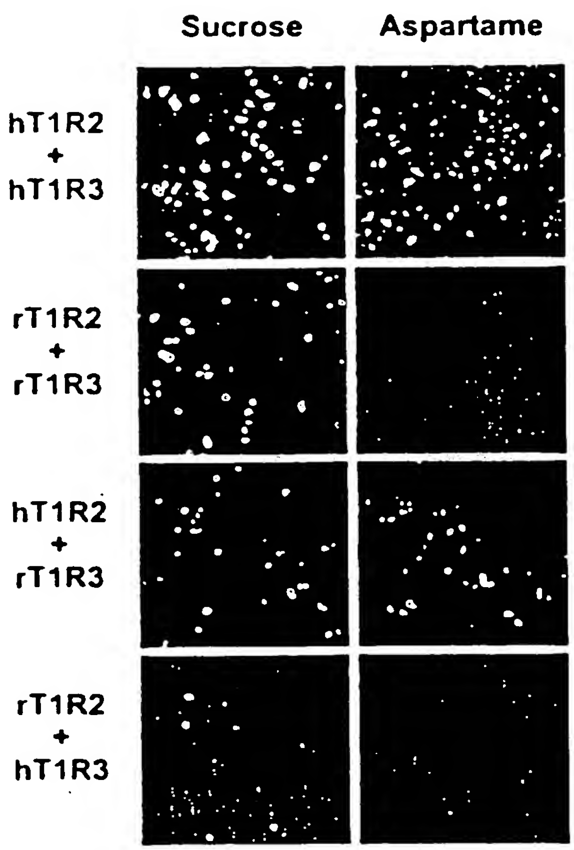
Figure 4 T1R2 may control T1R2/T1R3 ligand specificity



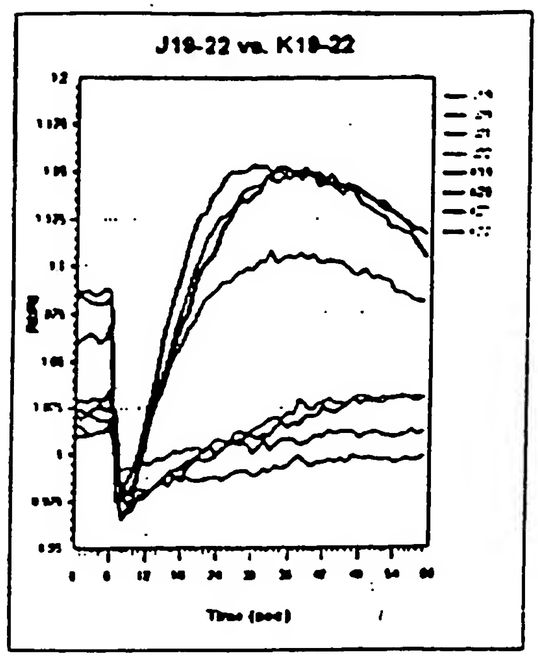
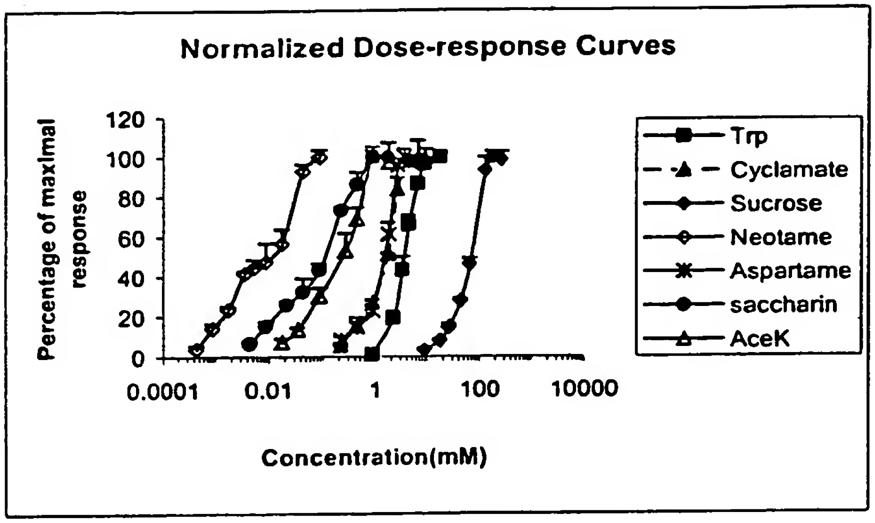


Figure 5

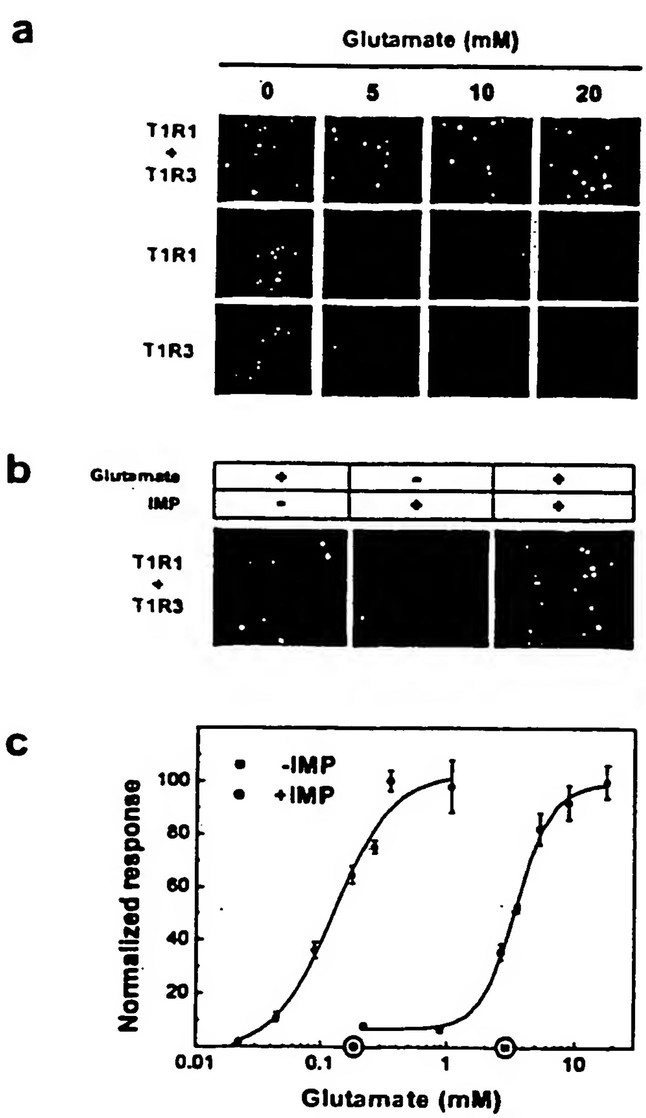


Normalized Dose-response Curves
Percentage of maximal response
120
100
80
60
40
20
0
0.0001
0.01
1
100
10000
Concentration(mM)
Trp
Cyclamate
Sucrose
Neotame
Aspartame
saccharin
AceK

Figure 6

Figure 7 Key ligand-binding residues of mGlurR1 are conserved in T1R1

Figure 8 Human T1R1/T1R3 functions as an umami taste receptor



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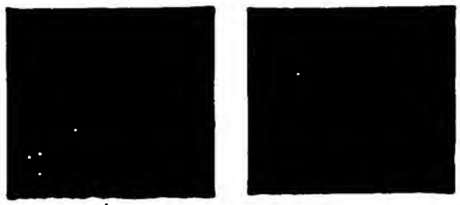
A.



H2-Π-Myc H2-PDZIP-Π-Myc

B.

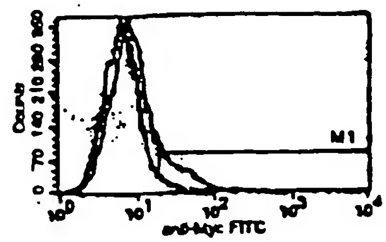


Figure 9 PDZIP facilitate the surface expression of human T1R2.

A. Immunofluorescence staining of Myc-tagged hT1R2 indicates that PDZIP significantly increases the amount of human T1R2 protein on the plasma membrane.

B. FACS analysis data demonstrating the same result. Myc-tagged human T1R2: Green line. Myc-tagged

C. human T1R2 with PDZIP: black line.

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Figure 10 Calcium-imaging data demonstrating hT1R2/hT1R3 responses to a number of sweet stimuli.

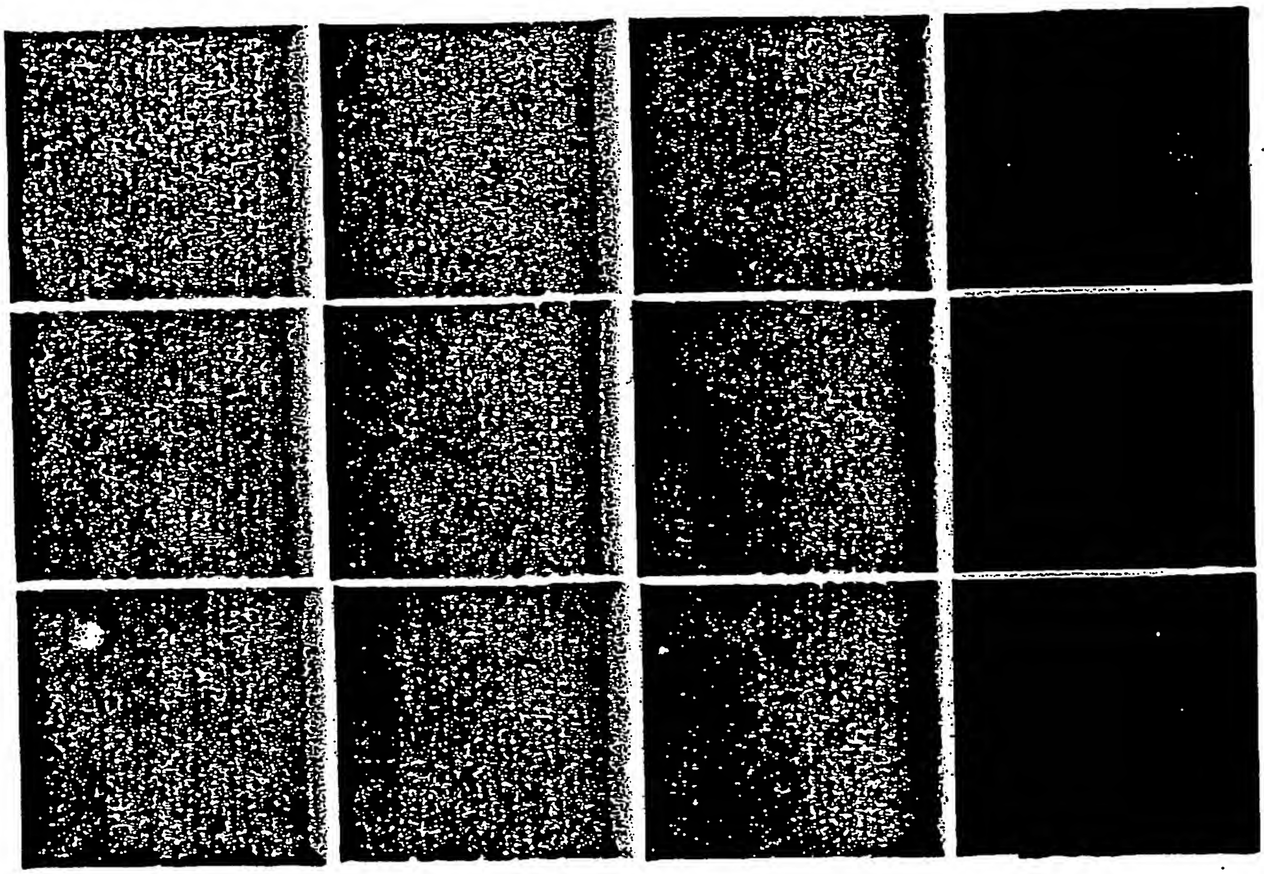


Figure 11

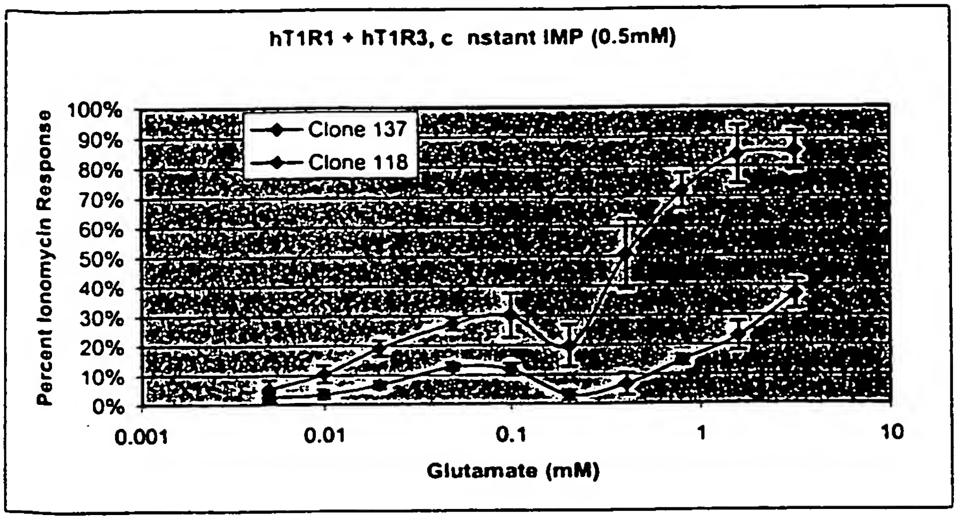
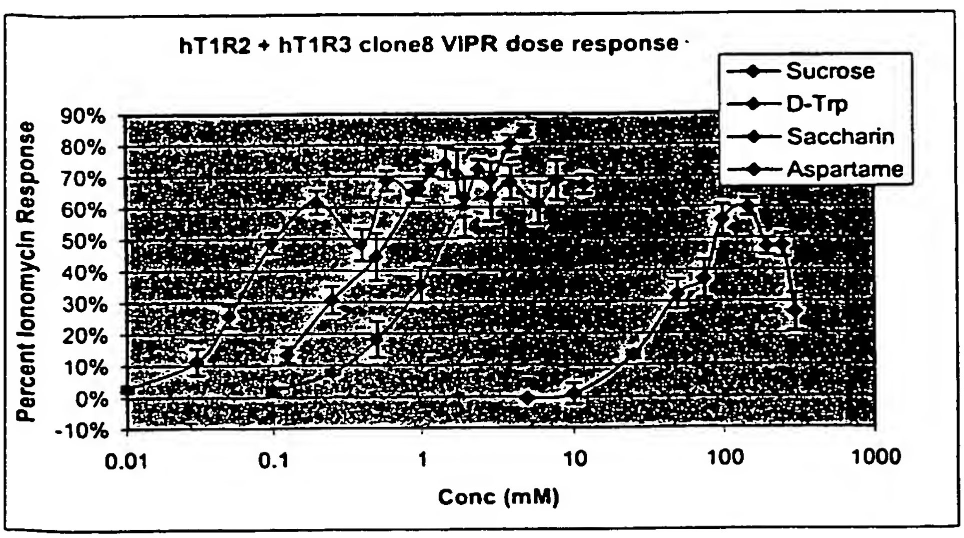


Figure 12



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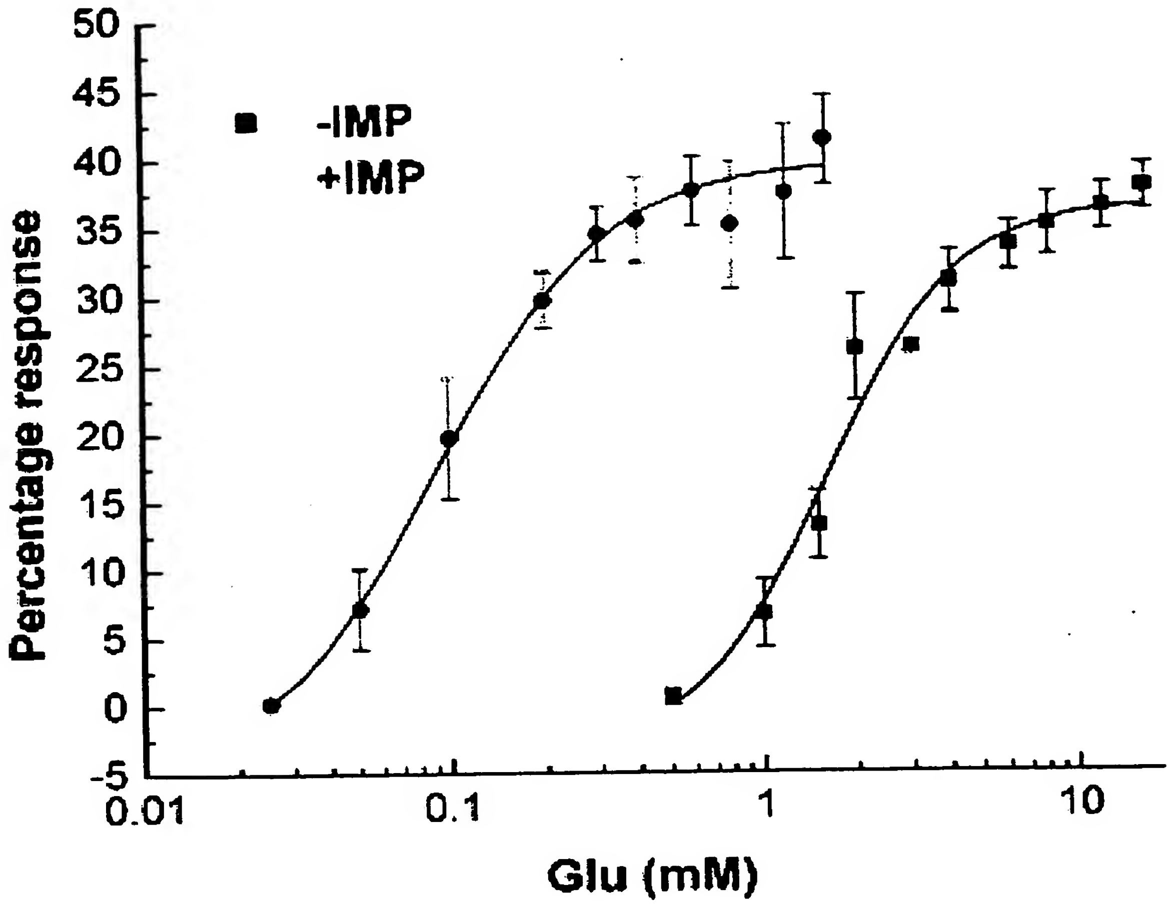
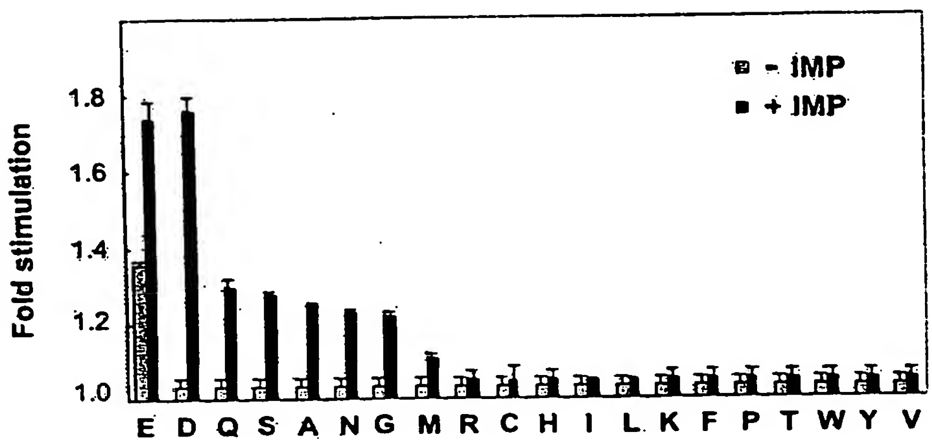

-IMP
+IMP
Percentage response
50
45
40
35
30
25
20
15
10
5
0
-5
0.01
0.1
1
10
Glu (mM)



- IMP
+ IMP
Fold stimulation
1.8
1.6
1.4
1.2
1.0
E D Q S A N G M R C H I L K F P T W Y V

Figure 14

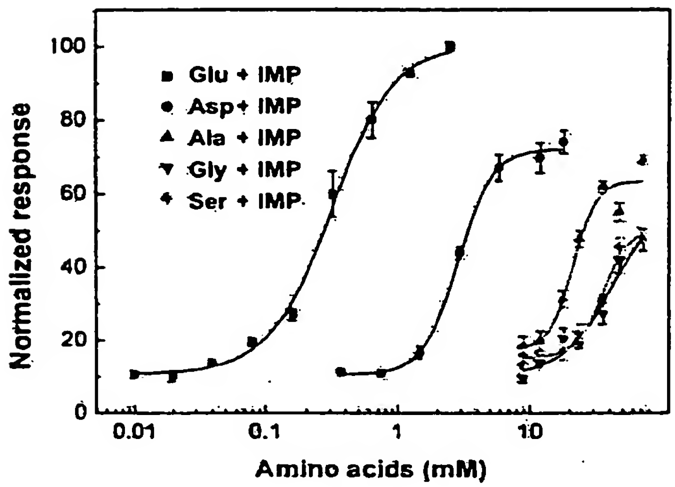

Glu + IMP
Asp + IMP
Ala + IMP
Gly + IMP
Ser + IMP
Normalized response
0
20
40
60
80
100
0.01
0.1
1
10
Amino acids (mM)

Figure 15

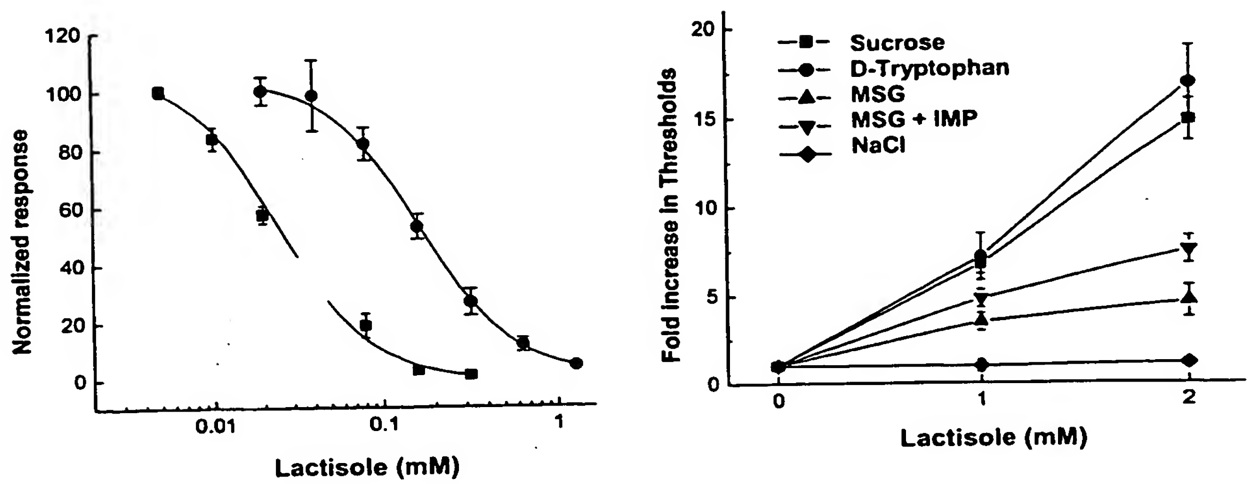


Figure 16 **Lactisole inhibits the T1R2/T1R3 sweet and T1R1/T1R3 umami receptors and sweet and umami taste.** (*Left panel*) responses of HEK-$G_{\alpha 15}$ cells transiently transfected with T1R1/T1R3 (*circles*) to 10 mM L-glutamate and HEK-$G_{\alpha 15}$ cells transiently transfected with T1R2/T1R3 (*squares*) to 150 mM sucrose in the presence of variable concentrations of lactisole are shown. (*Right panel*) fold increases in taste detection thresholds in the presence of 1 and 2 mM lactisole are shown for the sweet taste stimuli sucrose and D-tryptophan, the umami taste stimuli L-glutamate (MSG) and L-glutamate plus 0.2 mM IMP, and sodium chloride. Detection thresholds were determined following the method of Schiffman et al.